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Geoscientific Model Development Discussions

Interactive comment on "^{231}Pa and ^{230}Th in the ocean model of the Community Earth System Model (CESM1.3)" *by* Sifan Gu and Zhengyu Liu

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Dear Didier Roche,

Sorry for the confusion. Ocean model of CESM has the biogeochemical component (BGC), which simulates different biological variables. This BGC is described in Moore et al., 2013 and validated against observations in different studies as stated in our manuscript in section 2.2 as "POP2 has incorporated a marine ecosystem module that simulates biological variables (Moore et al., 2013). The marine ecosystem module has been validated against present day observations extensively (Doney et al., 2009; Long et al., 2013; Moore and Braucher, 2008; Moore et al., 2002, 2004)."

For the simulation of Pa and Th cycle, we need to get different particle concentrations

simulated in the BGC module. Jahn et al., 2015 develops an ecosystem driver in CESM which can pass variables simulated in the BGC out. We use this ecosystem driver to get the concentration of particles in the BGC module. This ecosystem driver acts as a media to help different modules in the ocean model to communicate. How the BGC is developed in the CESM can be referred to the references mentioned above.

Hope this helps.

Best,

Sifan Gu

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